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IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

JIMMY R. COLE, d/b/a JIM R. COLE & ASSOCIATES and COLE DEVELOPMENT COMPANY, INC.,
Petitioners,

versus

CONTINENTAL OIL COMPANY,
Respondent.

PETITIONERS' SUBSTITUTION APPENDICES A-C

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PETITIONERS' SUBSTITUTION APPENDIX A

CONTINENTAL OIL COMPANY,
Plaintiff-Appellant, Cross-Appellee,

v.

Jimmy R. COLE, d/b/a Jim R. Cole & Associates and
Cole Development Co., Inc.,
Defendants-Appellees, Cross-Appellants.

No. 78-1961

UNITED STATES COURT OF APPEALS
Fifth Circuit

Jan. 12, 1981

Rehearing and Rehearing En Banc
Denied Feb. 12, 1981

Plaintiff appealed from a determination of the United States District Court for the Southern District of Texas, at Houston, Robert O'Conor, Jr., J., that its patent for a seismic cable depth-controlling paravane was not infringed by a device patented by defendant. Defendant cross appealed, challenging the validity of plaintiff's patent. The Court of Appeals, Politz, Circuit Judge, held that: (1) plaintiff's patent No. 3,375,800 for a seismic cable depth-controlling paravane was valid; the paravane was neither anticipated by the prior art nor were the claims obvious to one ordinarily skilled in the art; (2) the creative process existing prior to issuance of plaintiff's patent was in an embryonic stage, and it would be manifestly unjust to characterize said patent as anything other than in-

novatively different and not readily obvious to a person of ordinary skill in the field of marine seismology; (3) defendant's accused device infringed the range of equivalents of plaintiff's patent; and (4) the doctrine of file wrapper estoppel was inapplicable.

Reversed, rendered and remanded.

C. Frederick Levdig, John W. Kozak, H. Michael Hartmann, Chicago, Ill., Frank B. Pugsley, G. Bryon Jamison, Houston, Tex., for plaintiff-appellant, cross-appellee.

Pravel, Wilson & Gambrell, Albert B. Kimball, Jr., B. R. Pravel, Houston, Tex., for defendants-appellees, cross-appellants.

Appeals from the United States District Court for the Southern District of Texas.

Before RUBIN and POLITZ, Circuit Judges, and SMITH,* United States District Judge.

POLITZ, Circuit Judge:

Continental Oil Company (Conoco) appeals the determination by the trial court that its patent for a seismic cable depth-controlling paravane is not infringed by a device patented by Jimmy R. Cole. Cole cross-appeals, challenging the validity of Conoco's patent. We disagree with the trial judge and conclude that Cole's device infringes, being equivalent in function and operation to Conoco's paravane. We also conclude that Conoco's patent is valid. We therefore reverse the decision of

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* District Judge of the Northern District of Mississippi, sitting by designation.

the trial judge, render judgment in favor of Conoco and remand for further proceedings.

[1-3] The issues posited to us can be resolved by applying well-established principles which have been stated and re-stated and, in the main, need only be capsulated. The sine qua non of appellate review of patent litigation is the notion that validity and interpretation are legal questions based upon factual inquiries. When confronted with pure questions of law, we are free to examine the district judge's answers and correct any error or oversight. In contrast, factual questions resolved by the trial court warrant deference and reversal is mandated only if the findings are clearly erroneous. Fed. R. Civ. P. 52(a). Although infringement normally is a fact question, legal questions of construction can become so intertwined that the clearly erroneous standard of review applicable to a pure fact finding must yield. The appeal we now decide falls into this latter category.

[4, 5] One form of infringement occurs when an accused device incorporates a teaching literally read. An infringement also occurs when a device appropriates a prior invention by incorporating its innovative concept and, albeit with some modification and change, performs substantially the same function in substantially the same way to achieve substantially the same result. The "doctrine of equivalents" shields the inventor from such abuse.

[6-8] The determination of equivalency involves an examination of the scope of prior art, the essence or "heart" of the invention disclosed and the step forward the invention offers. A pioneer or generic patent which opens a new path is entitled to broader protection than a patent which merely improves upon that which is already

known. The ambit of equivalency is also limited by the claims as made, amended or surrendered in the process which make up the "file wrapper" and grounds the defense of "file wrapper estoppel."

These principles were essentially noted by us in our recent decision in *Weidman Metal Masters v. Glass Master Corp.*, 623 F.2d 1024 (5th Cir. 1980), and cases cited therein, particularly *Studiengesellschaft Kohle v. Eastman Kodak Co.*, 616 F.2d 1315 (5th Cir. 1980).

[9] In the case *sub judice* we are not favored with "findings . . . sufficiently detailed to give us a clear understanding of the analytical process by which ultimate findings were reached and to assure us that the trial court took care in ascertaining the facts." *Golf City, Inc. v. Wilson Sporting Goods, Co., Inc.*, 555 F.2d 426, 433 (5th Cir. 1977). Instead, the trial court's findings are in the main conclusory. In this situation we routinely would remand for more specific findings. However, "[t]his failure is merely a hindrance and not a fatal error." *Whitley v. Road Corp.*, 624 F.2d 698, 700 (5th Cir. 1980). "Where the evidence is such that without weighing the credibility of the witnesses there can be but one reasonable conclusion as to the result, the case can be taken from the factfinding body." *Waldon, Inc. v. Alexander Manufacturing Company*, 423 F.2d 91, 93 n.3 (5th Cir. 1970).

The record is replete with evidence fully establishing the pertinent facts as they relate to infringement and validity. In the interest of judicial and other economies we are constrained to make the required factual collation to which we apply the legal principles resolving this dispute.

[10] The questions before the court concern the validity of Conoco's patent, U. S. Patent 3,375,800 (the '800 patent), and whether it is infringed by Cole's patent, U. S. Patent 3,931,608 (the '608 patent).[1]

A. *Factual Background*

The invention which has bred this litigation was birthed by the need to efficiently and economically locate structures beneath the ocean floor which are likely to contain oil and gas deposits. Seismic survey crews first conducted their tests on land, and later went offshore as the technology in this field advanced.

Whether on land or at sea, seismic surveys are made by electronically transmitting sound waves down into the subsurface where, on the rebound, the signals are received and recorded on surveyor's charts. The study of these charts by persons with knowledge of subterranean geological formations leads to educated adumbrations as to whether the area contains a structure which may accommodate commercial quantities of oil and gas.

In marine seismic surveying the return sound waves are received in the water above the ocean floor by instruments called hydrophones which are spaced along and

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1. We adhere to the view that determination of the validity of a patent should not be sidestepped for convenience by addressing only the infringement issue when the question of validity is raised. *See Sinclair Co. v. Interchemical Corp.*, 325 U.S. 327, 330, 65 S.Ct. 1143, 1145, 89 L.Ed. 1644 (1945) ("of the two questions [concerning validity or infringement], validity has the greater public importance"); *Beckman Instruments, Inc. v. Chemtronics, Inc.*, 428 F.2d 555, 558 n.4 (5th Cir.), *cert. denied*, 400 U.S. 956, 91 S.Ct. 353, 27 L.Ed.2d 264 (1970) ("when a challenge is made to the validity of a patent in an infringement suit, that issue should ordinarily be taken up first and infringement considered only if validity is decided favorably to the patentee").

are integral parts of a cable towed behind a survey boat. Maintaining these hydrophones at a constant depth while minimizing unwanted "noise" is essential to the accuracy of seismic readings. Prior to Conoco's paravane invention, depth was controlled primarily by attaching floats and weights to a neutrally bouyant cable. This equipment tended to create substantial noise which interfered with and distorted the return signals, markedly reducing the accuracy and usefulness of information generated. A further drawback inherent in displaying the cable by means of floats and weights, in order to maintain a constant depth, was the limitation in the area a crew could survey in a routine day. In sum, not only was the pre-paravane process slow, arduous and uncertain, but costly delays were frequently encountered.

The '800 patent claims a device co-invented by Cole while he worked for Conoco as an electrical engineer. The patent discloses a depth-sensing paravane (also called cable levelers, cable controllers or "birds") which can be attached at spaced intervals to a marine seismic cable. The paravanes take the cable to a pre-set depth and maintain that depth while the cable is under tow. The evidence is uncontroverted that the paravanes of the '800 patent were a significant step forward in the technology of marine seismography. The device not only affords precise depth control with a minimum of noise, but also greatly increases speed in use. One witness with forty years of experience in seismic surveying testified that before using the Conoco paravanes, his surveying capacity was limited to 500 miles during a two month period. With the use of Conoco's paravanes, however, this range increased to 2,000 miles. Several witnesses emphasized the improvement in the accuracy of the seis-

mic readings resulting from the reduction in the noise previously associated with controlling the cable depth. Finally, acceptance within the seismic survey industry also reflects the value of this invention. Within a short time after the paravanes became available a majority of the marine crews throughout the world were using them, including the crews of some of the largest companies.

B. *The Patents in Suit*

In resolving the issue of the validity of the Conoco patent, and in conjunction with our review of the infringement issue, we must examine the physical function and operation of three paravanes and certain accompanying patent claims. The first, the '800 patent, was co-invented by Cole and Paul L. Buller while Cole was, as noted, employed by Conoco. The second, the '608 patent, was patented by Cole four years after he left his employment with Conoco and went into business for himself. The third paravane, relevant only insofar as it represents the state of the prior art against which the validity of the '800 patent is to be tested, is U. S. Patent 3,372,666 (the '666 patent or Baker patent) owned by Texas Instruments.

1. Conoco Patent

The Conoco patent teaches an axial bore traversing the center of the embodiment of the invention through which the seismic cable passes. In other words, the paravane is placed concentrically around the cable. Because of the cable's length, usually one to two miles, it inevitably twists and turns while under tow. To prevent this movement from spinning or flipping the paravanes, each paravane is affixed by a pair of bearings, fore and

aft, which permits the cable to rotate freely. By connecting the inner race of one or botn of the bearings to the cable, the paravane is prevented from moving lengthwise along the cable and thus maintains its proper spacing.

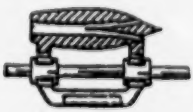
In the commercially preferred manifestation of Conoco's invention, the cable-receiving bore penetrates through the center of the paravane housing. The patent, however, also discloses alternative designs in which the bearings which form the bore for receiving the seismic cable are offset from, but parallel to, the length of the main paravane housing. The depth-sensing and regulating mechanism, several variations of which are embraced by the patent, can be interchanged in the various paravane designs.

U.S. Patent 3,375,800

Conoco's commercially preferred design with paravane housing placed concentrically around cable.

U.S. Patent 3,375,800

Conoco's alternative design with paravane offset from but parallel to cable.



2. Cole Patent

In 1972 Cole departed his employment with Conoco. He made several efforts at developing a paravane and in 1976 secured the '608 patent which is the basis of this infringement suit. After wading through a maze of insensate semantics we are convinced that the Conoco and Cole paravanes are conceptually and functionally identical. We are notably unimpressed by the testimony of the expert offered by Cole purporting to meaningfully distinguish the two devices. Both are equipped with an internal depth-sensing mechanism connected to a pair of vanes which operates to seek and maintain a predetermined depth. Both paravanes are structured and operate to counteract upward, downward and rotational forces. Both permit the cable to rotate freely. Lastly, both limit the noise produced in accomplishing depth control and constancy.

[11] In patent validity and infringement litigation the task of discerning reticent dissimilarities is as imperative as noting the more visible similarities. In this vein we note that Cole's model dffers from Conoco's commercial version in the following respects. First, the accused paravane is offset from the cable. Second, because the paravane is offset from the cable, the rotational capability is achieved by mounting the paravane on the cable through bearings located in collars which permit free movement of the cable. Third, approximately one out of every four paravanes sold by Cole comes equipped with an upper flotation device.

U.S. Patent 3,931,608

Cole's paravane with optional upper flotation housing.

U.S. Patent 3,931,608

Cole's paravane without upper flotation housing.

C. *Patent Validity*

[12] Relying on the Baker Patent[2] issued in 1968, and on a 1965 working model of Baker's device, Cole

2. Cole submits for consideration three additional patents as evidence of the prior art: Dorsey, U.S. Patent 1,625,245; Hammond, U.S. Patent 2,401,929; and Paslay, U.S. Patent 2,465,696. We find that the extent of dissimilarity between each of these patents and the '800 patent far exceeds that between the Baker and Conoco inventions. As our further discussion reflects, the degree of dissimilarity is sufficient to defeat any resort to prior art in challenging the validity of the '800 patent.

Although it may be true, as Cole contends, that a certain degree of visual similarity exists between the three earlier patents and the Conoco patent, this alone does not support a finding of similarity in structure and function. Important dissimilarities are also readily apparent—dissimilarities we find instructive in determining the prior art. The Paslay patent, for example, teaches the affixation of a drogue-type paravane at the end of the seismic cable, with an op-

maintains that: (1) Conoco's paravane was anticipated by the prior art, and (2) the '800 patent claims were obvious to one ordinarily skilled in the art.[3]

1. Anticipation and the Prior Art

In 1965 Buford M. Baker, an employee of Texas Instruments, conceived a seismic cable depth-controlling apparatus (the "Baker working model"). An in-house sketch prepared for the patent department of Texas In-

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tional paravane which may be attached to the cable directly behind the boat by means of a secondary cable. Neither paravane is situated concentrically around nor rotatably attached to the seismic cable. The Dorsey drogue-type paravene similarly can only be rigidly attached to the end of a seismic cable and does not contain a bore through which the cable passes. Finally, the Hammond patent, which discloses the use of multiple apparatuses at staggered intervals along parallel cables at two different depths, refers us back to the Dorsey patent. The cables apparently are depth-controlled by a paravane located at the front of each cable. Given the above basic difference between the Conoco and the three earlier patented devices, we find it unnecessary to further explore this avenue of purported prior art.

The earlier patents raised by Cole accentuate the extent of the difficulty encountered in solving the problem of efficiently and economically gathering accurate seismic readings in water. This evidence tends to enhance the novelty of the '800 patent. *See Reynolds v. Whitin Mach. Works*, 167 F.2d 78 (4th Cir.), *cert. denied*, 334 U.S. 844, 68 S.Ct. 1513, 92 L.Ed. 1768 (1948) (21 patents cited by defendant to prove lack of novelty of plaintiffs' invention). The '800 patent solved the problem the others failed to solve.

3. Adopting both grounds advanced by Cole, the district court intimated a finding of invalidity in the following statement:

> If plaintiff's patent claims . . . were construed as plaintiff contends . . . the claims . . . of the "800" patent in suit [would read] squarely on the Baker patent disclosure and also the prior Baker working model in evidence.

Not only is this statement unsupported by the evidence, it is inconsistent with the court's later observation that the finding of noninfringement "precludes the necessity of passing upon the issue of invalidity of Conoco's patent." The Final Judgment signed by the district judge, which Conoco states was prepared by counsel for Cole and signed over its objection, contained the reference to the invalidity of the '800 patent, an issue that apparently had not been decided.

struments contained the instruction: "Streamer [seismic cable] is free to rotate at attaching point." The invention ultimately issued as the '666 patent three years later, predating the '800 patent by less than three weeks. The rotatability feature was not part of the disclosure of the Baker patent application. Instead, the '666 patent teaches that the device is "clamped" to the cable.

[13] The defense of anticipation derives principally from 35 U.S.C. § 102(a) which provides:

> A person shall be entitled to a patent unless—(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant. . . .

It has been held repeatedly that not only is the defense of anticipation strictly a technical one, but that unless all of the same elements or their equivalents are found in substantially the same situation where they do substantially the same work in the same way, there is no anticipation.[4] Applying this definition to the state of the prior art in the instant case, we reject Cole's contention that the '800 patent was anticipated by either the Baker working model or the subsequent '666 patent.

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4. *See Steelcase, Inc. v. Delwood Furniture Co., Inc.*, 578 F.2d 74, 78 (5th Cir.), *cert. denied*, 440 U.S. 960, 99 S.Ct. 1503, 59 L.Ed.2d 773 (1978) ("The test for anticipation . . . requires a showing of actual identity in the prior art. . . ."); *Yoder Bros., Inc. v. California-Florida Plant Corp.*, 537 F.2d 1347, 1377 (5th Cir. 1976), *cert denied*, 429 U.S. 1094, 97 S.Ct. 1108, 51 L.Ed.2d 540 (1977); *Ziegler v. Phillips Petroleum Company*, 483 F.2d 858, 868 (5th Cir.), *cert. denied*, 414 U.S. 1079, 94 S.Ct. 597, 38 L.Ed.2d 485 (1973); *Harrington Manufacturing Co., Inc. v. White*, 475 F.2d 788 (5th Cir.), *cert. denied*, 414 U.S. 1040, 94 S.Ct. 542, 38 L.Ed.2d 331 (1973); *Van Gorp Mfg., Inc. v. Townley Industrial Plastics, Inc.*, 464 F.2d 16 (5th Cir. 1972).

[14-16] Our conclusion that the Conoco device was a breakthrough in the seismic industry and was not precursored by the Baker working model and its progeny rests on several bases. First, a presumption of validity arises from the issuance of a patent, *see Beckman Instruments, Inc. v. Chemtronics, Inc.*, 428 F.2d 555 (5th Cir.), *cert. denied*, 400 U.S. 956, 91 S.Ct. 353, 27 L.Ed. 2d 264 (1970). This is especially so in a case such as that before us where the same patent examiners simultaneously reviewed the allegedly contending applications, see *McCutchen v. Singer Company*, 386 F.2d 82 (5th Cir. 1967). *See also* 35 U.S.C. § 102(e), codifying the rule enunciated in *Milburn Co. v. Davis etc. Co.*, 270 U.S. 390, 46 S.Ct. 324, 70 L.Ed. 651 (1926) (date patent application is filed is used for the purpose of anticipating a subsequent invention). Although *McCutchen*, 386 F.2d at 85, supports the presumption of validity once a patent issues without the suggestion of interference by the Patent Office, *Beckman*, 428 F.2d at 561, goes one step further and reasons that if there is no evidence that the Patent Office considered a particular prior art, the presumption of validity is mitigated. *See also Parker v. Motorola, Inc.*, 524 F.2d 518 (5th Cir. 1975), *cert. denied*, 425 U.S. 975, 96 S.Ct. 2175, 48 L.Ed.2d 799 (1976); *Gaddis v. Calgon Corporation*, 506 F.2d 880 (5th Cir. 1975). Despite the simultaneous review by the same examiners, we shall, for present purposes, presume that the Patent Office did not consider the Baker patent before issuing the Conoco patent and subject both patents to an examination in that light.

[17] Of particular importance from Cole's viewpoint is the reference to rotatability in the Baker working model. This critical revelation soon vanishes, however, in light

of evidence indicating the intended or inadvertent suppression of the invention. Baker's description of the experimental model tested during the summer of 1965 appeared in a "Patent Disclosure Instruction and Cover Sheet' which he privately submitted to the patent department of Texas Instruments. It did not become public information. We cannot ascribe the label "prior art" to a private intracorporate communication of this nature. *See Stamicarbon, N. V. v. Escambia Chemical Corporation,* 300 F.Supp. 1209, 1215 (N.D. Fla. 1968), *aff'd as modified,* 430 F.2d 920 (5th Cir.), *cert. denied,* 400 U.S. 944, 91 S.Ct. 245, 27 L.Ed.2d 248 (1970) ("secret uses which are not publicly known or disclosed do not constitute 'prior art' under the provisions of 35 U.S.C. §§ 102 and 103").

[18, 19] We similarly reject Baker's '666 patent as prior art. Accepting *per arguendo* the contention that the rotatability feature noted in the private sketch of Baker's working model is analogous to that component of the '800 patent, imputing that similarity to the '666 patent when the patent disclosure teaches otherwise would be inappropriate. The fact that the '666 patent described the point where the paravane is attached to the seismic cable as a "clamp," rather than a rotatable apparatus, cannot be dismissed in the words of Cole's witness as "just an oversight by the patent attorney." We cannot measure the anticipatory effect of a patent by speculating as to what might have been gleaned from it. We must remain within the four corners of the patent's disclosures. *See, e.g., McCullough Tool Company v. Well Surveys, Inc.,* 343 F.2d 381 (10th Cir. 1965), *cert. denied,* 383 U.S. 933, 86 S.Ct. 1061, 15 L.Ed.2d 851 (1966); *Illinois Tool Works, Inc. v. Continental Can Company,* 273 F.

Supp. 94 (N.D. Ill. 1967), *aff'd*, 397 F.2d 517 (7th Cir. 1968).

We further note the overwhelming evidence adduced at trial reflecting not only the substandard operational capability of the Baker invention, but also the rudimentary level of technical development achieved. During experimental runs the Baker device had a tendency to oscillate, occasionally "porpoising" out of the water. In the words of Baker's supervisor, "innovative engineering" was needed to reduce the Baker concept to practice and develop it into an operationally useful device. *See United States v. Adams*, 383 U.S. 39, 50, 86 S.Ct. 708, 713, 15 L.Ed.2d 572 (1966) ("An inoperable invention or one which fails to achieve its intended result does not negative novelty."). Accordingly, we find that the prior art does not invalidate the '800 patent.

2. Obviousness

[20, 21] Cole next alleges that the '800 patent claims were obvious, thereby rendering the patent invalid under 35 U.S.C. § 103. In contrast to the defense of anticipation, which speaks only to the novelty of an invention, the defense of obviousness raises the question of inventiveness. Section 103 provides:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability

> shall not be negatived by the matter in which the invention was made.

Thus, while the ultimate question of patent validity is one of law, the analytical method to be utilized by courts confronted with the question of obviousness includes basic factual inquiries into the scope and content of the prior art, the differences between prior art and the claims at issue, and the level of ordinary skill in the pertinent art. *See Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); *John Zink Co. v. National Air-oil Burner Co.*, 613 F.2d 547 (5th Cir. 1980).

[22] A substantial portion of our prior discussion concerning anticipation by the prior art is pertinent in resolving the question of obviousness. Because of the novelty-inventiveness dichotomy, however, prior art may result in an invention being obvious even though not anticipated. *See e.g., Harvey v. Levine*, 322 F.2d 481 (6th Cir. 1963); *Amphenol Corporation v. General Time Corporation*, 397 F.2d 431 (7th Cir. 1968).

[23] The linchpin is not whether the individual components of the '800 patent were obvious at the time of the invention, but whether the aggregation produced a new or different result or achieved a synergistic effect. *See Ingersoll-Rand Company v. Brunner & Lay, Inc.*, 474 F.2d 491, 496 (5th Cir.), *cert. denied*, 414 U.S. 865, 94 S.Ct. 125, 38 L.Ed.2d 117 (1973). *See also Adams v. United States*, 380 F.2d 622, 625, 165 Ct. Cl. 576 (1964), *aff'd*, 383 U.S. 39, 86 S.Ct. 708, 15 L.Ed. 2d 572 (1966) ("While the use of any of the individual components . . . may have been obvious at the time of the invention, the invention *as a whole* was not obvious. . . ."). In addition to the several patents Cole raised

which we have noted above as non-dispositive, the remaining semblance of prior art against which the '800 patent must be compared is the Baker patent. As previously recognized, the Baker patent does not teach utilization of a rotatable seismic cable. It is also evident that Baker and other Texas Instrument employees involved in the invention possessed not only ordinary, but most likely extraordinary skill in the art. Yet by the time Conoco obtained the '800 patent in 1968, Baker and his co-workers had spent over three years trying unsuccessfully to produce a functional paravane.[5]

[24] Having compared the Conoco paravane with the prior art, we are convinced that the creative process existing prior to issuance of the '800 patent was in an embryonic stage. It would be manifestly unjust to characterize the '800 patent as anything other than innovatively different and not readily obvious to a person of ordinary skill in the field of marine seismology. We find the '800 patent valid and proceed to assay the district judge's holding that the '608 patent did not infringe.

D. Infringement

The final issue is whether Cole's '608 patent infringes Conoco's '800 patent. The allegation stems from five claims of the '800 patent, numbers 1, 2, 4, 22 and 25, the most controversial and inclusive of which reads in part:

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5. The contemporaneous failures of those who are experts in the art tend to indicate that an invention is not obvious. *See e.g., Illinois Tool Works, Inc. v. Continental Can Company*, 397 F.2d 517 (7th Cir. 1968). The failures experienced by the Baker group were not mere construction infirmities requiring only slight modifications, but were design defects requiring innovative engineering.

> 1. A paravane . . . comprising: a housing having a bore means along its length thereof. . . .

The parties to this case as well as the district judge put much emphasis on the interpretation to be accorded this language. We do not find a *strictissimi* interpretation necessary given the liberal construction warranted by the doctrine of equivalents.

[25, 26] We accept the finding of the district court that sufficient differences exist between the Conoco and Cole inventions to avoid literal infringement. We underscore, however, that it is precisely because "minor modifications are . . . sufficient to avoid literal infringement," *Weidman Metal Masters v. Glass Master Corp.*, 623 F.2d 1024, 1026 (5th Cir. 1980), that the protection afforded patentees by the doctrine of equivalents must not be emasculated by too quick a stroke of the judicial pen.[6]

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6. Recognizing the important role played by the doctrine of equivalents in protecting patent claims from the enterprising minor deviations of invention "pirates," the Supreme Court in *Graver Mfg. Co. v. Linde Co.*, 339 U.S. 605, 607, 70 S.Ct. 854, 855-56, L.Ed. 1097 (1950), stated:

> In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim. If accused matter falls clearly within the claim, infringement is made out and that is the end of it.
>
> But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It

1. Doctrine of Equivalents

[27, 28] We are cognizant that a finding of equivalence is a determination of fact. *Ziegler v. Phillips Petroleum Company,* 483 F.2d 858 (5th Cir.), *cert. denied,* 414 U.S 1079, 94 S.Ct. 597, 38 L.Ed.2d 485 (1978). In this case, however, the breadth of the doctrine of equivalents is a question of law because it concerns the construction of the '800 patent. *See Coupe v. Royer,* 155 U.S. 565, 15 S.Ct. 199, 39 L.Ed. 263 (1895). Our perception of the doctrine of equivalents is best expressed by this Supreme Court teaching:

> What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. It does not require complete identity for every purpose and in every respect. In determining equivalents, things equal to the same thing may not be equal to each other and, by the same token, things for most purposes different may sometimes be equivalents. Consideration must be given to the purpose for which an ingredient is used in a patent, the equalities it has when combined with the other ingredients, and the function which it is intended to perform.

Graver Mfg. Co. v. Linde Co., 339 U.S. 605, 609, 70 S.Ct. 854, 856, 94 L.Ed. 1097 (1950). Once the framework for determining equivalency had been erected, it becomes readily apparent that the Cole device has infringed the range of equivalents of the '800 patent.

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would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.

2. File wrapper estoppel

[29] Finally, we address the applicability of the doctrine of file wrapper estoppel. This doctrine prevents a patentee from reclaiming through the doctrine of equivalents that which was voluntarily surrendered by the narrowing of the language of the patent claims in order to avoid prior art cited by the Patent Office. The district judge concluded the doctrine applies. We disagree, being of the opinion that the range of equivalents has not been so limited as to preclude a finding of infringement by the Cole patent.

[30] The original application for the '800 patent was filed in December 1966 and embraced only the commercially preferred design with the paravane placed concentrically around the seismic cable. In April 1967, a continuation-in-part application was filed which included other manifestations of the invention. The district judge concluded that the original claims were broad enough to cover the accused device, but that the continuation-in-part constituted a disclaimer which now estops Conoco from asserting that which it previously surrendered. We reject the district judge's conclusion for three reasons. First, in *Hunt Tool Company v. Lawrence,* 242 F.2d 347 (5th Cir.), *cert. denied,* 354 U.S. 910, 77 S.Ct. 1296, 1 L.Ed.2d 1428 (1957), we noted that a patent applicant is not presumed to have narrowed his claim more than was necessary to satisfy the Patent Office's challenge. Second, in the case before us, there is no evidence in the file history that the Conoco application was amended because of the Patent Office's rejection based on prior art. Third, because the '800 invention solved a sophisticated and stubborn problem in the field of marine seismology,

which had long remained unresolved despite vast research and development efforts conducted over a number of years, a broader degree of protection is to be afforded under the doctrine of equivalents than that ascribed by the district judge.[7]

Cole contends that on the basis of file wrapper estoppel, his '608 patent does not infringe the following language of Claim No. 1 of the '800 patent: "a housing having a bore means along its length thereof." He emphasizes that the *housing* structure of the '608 paravane does not *have* a bore means (that portion of the paravane that receives and allows rotation of the cable) along its length. His argument rests largely on the trial judge's finding that the collars securing the main body of the paravane to the cable do not constitute part of the housing. Were we to agree that the doctrine of equivalents is to be narrowly applied it would be necessary to carefully analyze these terms. Because we hold that broad protection is to be accorded the '800 patent claims we find it unnecessary to engage in that exercise.

The '800 and '608 patents involve more than a similarity in result. The evidence "establish[es] substantial identity of means, operation and result." *Foster Cathead Company v. Hasha*, 382 F.2d 761, 765 (5th Cir. 1967), *cert. denied*, 390 U.S. 906, 88 S.Ct. 819, 19 L.Ed.2d

7. We do not go so far as to classify the '800 patent as a pioneer, *i.e.* "a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art," but neither do we consider the invention to be "a mere improvement or perfection of what had gone before." *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537, 561-62, 18 S.Ct. 707, 718, 42 L.Ed. 1136 (1898). The '800 patent falls someplace in between, as does the measure of protection to be afforded to it.

872 (1968), *quoting* C. Pigott, Equivalents in Reverse, 43 Journal of the Patent Office Society 291-92 (1966). The '608 patent infringes the '800 patent.

The decision of the district court is REVERSED. We hold that Conoco's patent, U.S. Patent 3,375,800 is valid and that it is infringed by Cole's patent, U.S. Patent 3,931,608. The case is REMANDED for further proceedings consistent with this opinion.

REVERSED, RENDERED and REMANDED.

PETITIONERS' SUBSTITUTION APPENDIX B

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

CIVIL ACTION NO. H-75-1288

CONTINENTAL OIL COMPANY

v.

JIMMY R. COLE, D/B/A JIM R. COLE &
ASSOCIATES AND COLE DEVELOPMENT
COMPANY, INC.

MEMORANDUM

Plaintiff, Continental Oil Company ("Conoco") sues for infringement under the Patent Laws of the United States, Title 35 U.S.C. against Jimmy R. Cole, d/b/a Jim R. Cole & Associates ("Cole") and Cole Development Company, Inc. ("Cole Development"). This Court has jurisdiction of the parties and of the subject matter of this action by virtue of U.S.C. § 1338 and § 2201. Venue is properly laid in this district under Title 28 U.S.C. § 1406(b). Defendant Cole alleges that plaintiff's patent is invalid and alternatively that defendant's patent does not infringe.

Defendant, while an employee of plaintiff, obtained Patent No. 3,375,800 (hereinafter the "800" patent). The "800" patent is a device for maintaining an underwater seismic cable at a constant depth while being towed by a ship. After leaving, Conoco, defendant obtained Patent No. 3,931,608 (hereinafter the "608" patent)

on an improved underwater cable water controller, which device is the alleged infringing apparatus. Defendants' manufacture and sell two models of their cable depth controllers, one of which is shown in Fig. 1 of defendants' United States Patent 3,931,608, and the other of which is shown in Fig. 3 of the same patent. The difference between the two models is that the Fig. 3 model includes an additional flotation tube assembly T. The evidence shows that a vast majority of the defendants' cable depth controllers which have been manufactured and sold are of the type shown in Fig. 1 of U. S. Patent 3,931,608, in which the housing H is located to one side of the streamer or cable K.

Plaintiff claims that defendants wilfully infringed five claims of the "800" patent by the manufacture and sale of a seismic depth control appartus and, further, that defendants induced the purchasers of the accused apparatus to use it in an infringing manner. The claims of the "800" patent on which Conoco asserts infringement read as follows:

> 1. A paravane for a seismic cable adapted to be towed substantially horizontally through water, comprising: a housing having a bore means along its length thereof, said bore means of a size to receive said seismic cable and allow rotation of said seismic cable without rotation of said housing while transmitting upward and downward forces between the housing and the adjacent portions of said cable; bearing means for securing the housing onto said seismic cable against movement of said housing along said cable; and means carried by the housing including at least one vane for maintaining the para-

vane at a predetermined depth in the water as the paravane is moved through the water by the cable and for counteracting upward, downward and turning forces imposed on the housing, whereby the paravane maintains the adjacent portions of the said seismic cable at said predetermined depth.

2. A paravane as defined in Claim 1 wherein said last mentioned means includes: ballast carried by the housing below the cable to counteract turning forces imposed on the housing; depth sensing means carried by the housing; and adjustable diving means carried by the housing, engaging the water and connected to the depth sensing means for varying the depth of the paravane in response to the depth sensing means.

4. A paravane as defined in claim 2 wherein said adjustable diving means comprises: diving plans rotatably secured to the opposite sides of the housing; and means interconnecting the diving planes for uniform adjustment of the diving planes in response to the depth sensing means.

22. Apparatus for maintaining a seismic cable at a predetermined depth as the cable is being towed substantially horizontally through water, comprising: a plurality of paravanes secured in spaced relation along the cable, each of said paravanes comprising: a housing having a bore means along its length thereof, said bore means of a size to receive said seismic cable and allow rotation of said cable without rotation of said housing while transmitting upward and downward forces between said housing and adjacent portions of said cable; bearing means

for securing said housing onto said cable against movement of said housing along said cable; and means carried by the housing including at least a vane for maintaining the paravane at a predetermined depth in the water as the paravane is moved through the water by the cable and for counteracting upward, downward and turning forces imposed on the housing, whereby the paravane maintains the adjacent portion of the cable at said predetermined depth.

25. A paravane for an elongated member adapted to be towed substantially horizontally through water, comprising: a housing having a bore means along its length thereof, said bore means of a size to receive said elongated member and allow rotation of said elongated member without rotation of said housing while transmitting upward and downward forces between the housing and the adjacent portions of said elongated member; bearing means for securing the housing onto said elongated member against movement of the housing along said elongated member; and, means carried by the housing including at least a vane for maintaining the paravane is moved through the water by said member and for counteracting upward, downward and turning forces imposed on the housing, whereby the paravane maintains the adjacent portion of said predetermined depth.

Defendants maintain first that the "800" patent is invalid for obviousness. Secondly, as the five claims of the "800" patent in suit cannot be construed to describe either model of cable depth controller that defendants sell, defendants have not infringed the "800" patent.

Thirdly, the file history of the "800" patent and the amendments made to seccure the patent create a "file wrapper estoppel" which prevents plaintiff from now contending that these claims cover defendants' device.

Collateral to the issue of non-infringement are several purely legal issues raised by defendant Cole: (1) there exists an implied royalty-free license to manufacture and sell defendants' devices since plaintiff has granted licensed users of cable depth controllers the unrestricted right to have such depth controllers made by others, (2) with respect to acts performed outside the territorial limits of coverage of the United States Patent Laws, there can be no infringement and (3) plaintiff's alleged knowledge of material and relevant prior art and its failure to disclose such art to the Patent Examiner during the prosecution of the patent in suit renders this an exceptional case under 35 U.S.C. 285 entitling defendants to an award of their attorneys fees.

The "800" patent is a combination patent, i.e. it is a patent in which all of the individual elements are old and the asserted novelty resides in the combination of those elements. The patent must be strictly confined to the particular combination claimed. Patents on a simple combination of known mechanical elements, such as the patent in suit, are difficult to obtain and they are not easily infringed. *Foster v. Hasha,* 382 F.2d 761, 766 (5th Cir. 1967). For plaintiff to sustain a charge of infringement by defendant, defendant's tools must include all elements explicitly recited in the claim. Omission of a single element in such a claim clearly avoids infringement. *Deepsouth Packing Co. v. Laitram Corp.,* 406 U.S. 518 (1972); *Marvin Glass v. Sears,* 448 F.2d 60, 61 (5th Cir. 1971).

In addition to direct infringement, there can be infringement under the doctrine of equivalents. This doctrine must be applied narrowly to the particular simple combination patent claimed because they are difficult to obtain and should be sustained. *Hughes v. Magnolia Petroleum Co.*, 88 F.2d 817, 33 (5th Cir. 1937); *Stewart-Warner Corp. v. Lone Star Gas Co.*, 195 F.2d 645 (5th Cir. 1952); *Sisko v. Southern Resin and Fiberglass Corporation*, 248 F.Supp. 797, (S.D. Fla. 1965), aff'd 373 F.2d 866 (5th Cir. 1967).

To establish equivalency for the purpose of showing infringement of the five claims of plaintiff's patent by defendant, plaintiff must prove that defendant's tools are substantially identical with the arrangement defined in the claim as to structure, mode of operation and results attained. *Ziegler v. Phillips Petroleum Co.*, 483 F.2d 858, 868 (5th Cir. 1973); *Harrington Manufacturing Co., Inc. v. White*, 475 F.2d 788, 796 (5th Cir. 1973), *cert. denied*, 38 L.Ed.2d 331 (1973); *Marvin Glass & Associates v. Sears, Roebuck and Company*, 448 F.2d 60, 61 (5th Cir. 1971).

However, before plaintiff may reach the question of equivalency, he must deal with limitations imposed upon his own patent under the doctrine of file wrapper estoppel. An invention is construed not only in the light of its claims, but also with reference to its file wrapper or prosecution history in the Patent Office. *Ziegler v. Phillips Petroleum Company*, 483 F.2d 858, 870 (5th Cir. 1973). After prosecution of his patent, an applicant is precluded by the doctrine of file estoppel from thereafter ignoring restrictive terminology added to the patent and attempting by the doctrine of equivalents to interpret the claims as

though the limitations were not present. *Graham v. John Deere Co.*, 383 U.S. 1, 33 (1966); *Schriber Co. v. Cleveland Trust Co.*, 311 U.S. 211, 220-1, (1940); *Weber Electric Co. v. Freeman Electric Co.*, 256 U.S. 668, 677 (1920); *Smith v. Magic City Kennel Club*, 282 U.S. 784, 789 (1930); *Ziegler v. Phillips Petroleum Co.* 483 F.2d 858, 870 (5th Cir. 1973). The doctrine of file wrapper estoppel applies whether the restriction added subsequent to application to the Patent Office were proposed by the Patent Examiner or the applicant. *Dry Hand Mop Co. v. Squeez-egy Mop Co.*, 17 F.2d 465, 466 (5th Cir. 1927).

The file wrapper of plaintiff's patent in suit reveals that the only claims broad enough to cover defendants' structure were cancelled and replaced by more limited claims. Each of the structural differences between defendants' structure and plaintiff's claims in suit were a result of amendatory language submitted during prosecution of plaintiff's patent in suit in the Patent Office. Accordingly, as a matter of law under the doctrine of file wrapper estoppel, plaintiff cannot now assert that the amended claims cover what has been eliminated from coverage during prosecution before the Patent Office.

The broadest claim of the "800" patent which is asserted in this litigation is claim 1. The following elements of Claim 1 have not been included in the defendants' model Fig. 1 or defendants' model Fig. 3:

> (a) Defendants' device does not have "a housing having a bore means along its length." This is because the dictionary definition of "housing" is "in mechanics, a frame, box, etc. for containing some part." The only "housing" in the defendants' cable depth controllers is the housing H shown in Figs. 1

and 3 of U. S. Patent 3,931,608, but it does not have "a bore means along its length" as required by Claim 1. Therefore, the structure, "a housing having a bore means along its length", cannot be found in defendants' cable depth controllers.

(b) The collars 20 of the defendant's device cannot be considered a "housing" in accordance with the dictionary definition because they are not for "containing some part".

(c) There is no "bearing means for securing the housing onto said seismic cable" in the defendants' cable depth controller because the housing does not have any bearing means in defendants' cable depth controllers.

(d) The vanes P of the defendants' cable depth controller are not carried by the housing H, but instead are mounted on a separate body S which is attached to the housing H and therefore defendants' cable depth controllers do not have the "means carried by the housing including at least one "vane as recited in Claim 1.

Since the other claims have more elements than Claim 1 and since each of the other claims, 2, 4, 22, and 25 have the foregoing elements which are not found in defendants' cable depth controllers, none of the claims, 1, 2, 4, 22 and 25 of the "800" patent in suit are infringed by defendants' cable depth controllers.

Although the model shown in Fig. 3 of defendants' patent 3,931,608 may look more like the plaintiff's cable depth controller of the "800" patent in suit than the Fig. 1 model of U. S. Patent 3,931,608, the evidence is that the flotation device T is only added in a very limited number of cases and could be omitted entirely, but it does not add any additional element which would cause the

Fig. 3 model of defendants' cable depth controller to come within the claims 1, 2, 4, 22 and 25 of the "800" patent in suit.

If plaintiff's patent claims 1, 2, 4, 22 and 25 were construed as plaintiff contends so that the collars 20 of defendants' cable depth controllers were considered as the "bore means" of the housing H, such conclusion would necessarily lead to a reading of the claims 1, 2, 4, 22 and 25 of the "800" patent in suit squarely on the Baker patent disclosure and also the prior Baker working model in evidence.

In view of the above factual determination, this Court finds that neither of defendants' devices infringe the "800" patent. Such finding precludes the necessity of passing upon the issue of invalidity of Conoco patent. The Court further finds that this is not an exceptional case under 35 U.S.C. § 285 by virtue of misrepresentation to the Patent Office. Therefore, defendant Cole is not entitled to attorney's fees under 35 U.S.C. § 285.

Defendants' attorney will draft a judgment in accordance with the memorandum opinion for submission to this Court.

Signed at Houston, Texas, this 8th day of March, 1978.

/s/ ROBERT O'CONOR, JR.
Robert O'Conor, Jr.
United States District Judge

PETITIONERS' SUBSTITUTION APPENDIX C

UNITED STATES COURT OF APPEALS
Fifth Circuit

DENIALS OF REHEARING EN BANC

(Rule 35 Federal Rules of Appellate Procedure; Local Fifth Circuit Rule 12)

Group 1—Denials where no member of the panel nor Judge in regular active service on the Court requested that the Court be polled on rehearing en banc.

Group 2—Denials after a poll requested by a member of the panel or a Circuit Judge in regular active service.

Group 3—Denials on the Court's own motion after a poll requested by a member of the panel or a Circuit Judge in regular active service.

Title GROUP 1	Docket Number	Date of Denial	Citation of Panel Decision
Baker v. Metcalfe	80-1626	2/17/81	N.D.Tex., 633 F.2d 1198
Concerned Democrats of Florida v. Reno	80-5482	2/ 9/81	S.D.Fla., 634 F.2d 629
Continental Oil Co. v. Cole	78-1961	2/12/81	S.D.Tex., 634 F.2d 188
Palaez Del Casal v. Eastern Air Lines, Inc.	79-2953	2/18/81	S.D. Fla., 634 F.2d 295
U. S. v. Chagra	80-1506	2/ 2/81	W.D. Tex., 636 F.2d 311
U. S. v. McCain	79-5577	2/ 6/81	S.D.Fla., 633 F.2d 581